

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Gwong-Jen J. Chang

Patent No. 7,417,136

Issued: August 26, 2008

Application No. 09/701,536

Filed: June 18, 2001

Confirmation No. 5492

For: NUCLEIC ACID VACCINES FOR
PREVENTION OF FLAVIVIRUS
INFECTION

Examiner: Jeffrey S. Parkin, Ph.D.

Art Unit: 1648

Attorney Reference No. 6395-64907-01

FILED VIA EFS

SUBMITTED VIA ELECTRONIC FILING SYSTEM
COMMISSIONER FOR PATENTS

REQUEST FOR CERTIFICATE OF CORRECTION

The following errors were noted in the printed patent:

In Other Publications (Section (56)):

On Page 1, under Lin *et al.*: “Elicitis” should read –Elicits–

On Page 1, under Wang *et al.*: “*Virology* 288:” should read –*Virology* 228–

On Page 3, Column 1, line 32: “NS₁” should read –NS1–

On Page 3, Column 1, line 33: “Overwriting” should read –Overwintering–

On Page 3, Column 2, line 22: “submit” should read –subunit–

In the Specification:

Column 1, line 26: “*yellow fever virus. JEV,*” should read –*yellow fever virus, JEV,* –

Column 1, line 29: “others Altogether” should read –*others. Altogether*–

Column 1, line 30: “(1998))” should read –(1998)). –

Column 1, line 41: “virions M” should read –virions. M–

Column 1, line 62: "(1990))" should read -(1990). –
Column 2, line 7: "(1985))" should read -(1985)). –
Column 2, line 13: "elderly; in" should read –elderly, in–
Column 2, line 39: "viremia" should read –viremia.–
Column 2, line 42: "(Tsai et al.) Whole" should read -(Tsai *et al.*). Whole–
Column 2, line 43: "do not have" should read –do have–
Column 2, line 44: "advantages The" should read –advantages. The–
Column 2, line 45: "host Such" should read –host. Such–
Column 2, line 46: "expensive Furthermore," should read –expensive.

Furthermore, –

Column 2, line 54: "disease" should read –disease.–
Column 2, line 56: "WO 93/06214 The" should read –WO 93/06214. The–
Column 2, line 60 "JEV" should read –JEV.–
Column 2, line 63: "glycoprofien" should read –glycoprotein–
Column 3, line 3: "vaccine" should read –vaccine.–
Column 3, line 7: "JEV Recombinant" should read –JEV. Recombinant–
Column 3, line 13: "NS2B These" should read –NS2B. These–
Column 3, line 26: "(1992) Dmitriev *et al.*" should read -(1992)). Dmitriev *et*

al. –

Column 3, line 31: "fever Zhao" should read –fever. Zhao–
Column 3, line 49: "(1989) Also" should read -(1989)). Also–
Column 3, line 61: "(1997) Plasmid" should read -(1997)). Plasmid–
Column 3, line 63: "immunization In" should read –immunization. In–
Column 4, line 4: "(Kochel et al.) Challenge" should read -(Kochel *et al.*).

Challenge) –

Column 4, line 23: "YFV Vaccine" should read –YFV. Vaccine–
Column 4, line 26: "alluded to" should read –alluded to. –
Column 4, line 33: "immunity There" should read –immunity. There–
Column 4, line 47: "St. Lous" should read –St. Louis–
Column 4, line 49: "(JEV) In important" should read -(JEV). In important–

Column 4, lines 50-51: "both In" should read –both. In–
Column 4, line 53: "antigens In" should read –antigens. In–
Column 5, lines 2-3: "anti-gens" should read –anti-gens. –
Column 5, line 11: "carrier In" should read –carrier. In–
Column 5, lines 13-14: "JEV Fur-thermore," should read –JEV. Fur-thermore,–
Column 5, line 25: "terminator" should read –terminator.–
Column 5, lines 52-53: "promoter Further-more," should read –promoter.

Further-more, –

Column 5, line 66: "protecting" should read –protective–
Column 6, line 4: "inventory" should read –inventor–
Column 6, line 5: "acid is conferring" should read –acid in conferring–
Column 6, line 35: "PCIBamp" should read –pCIBamp–
Column 6, line 53: "(pair) The" should read –pair). The–
Column 6, line 56: "ascetic" should read –ascitic–
Column 6, line 58: "(ascetic fluid)" should read –ascitic fluid).–
Column 7, line 4: "*St. Lous*" should read –*St. Louis*–
Column 7, line 15: "HIAF Viral" should read –HIAF. Viral–
Column 7, line 17: "respectively" should read –respectively.–
Column 7, line 33: "molecules" should read –molecules.–
Column 7, line 45: "TU Although" should read –TU. Although–
Column 8, line 8: "TU In particular" should read –TU. In particular–
Column 8, line 10: "TU In particular" should read –TU. In particular–
Column 8, line 12: "cell In particular" should read –cell. In particular–
Column 8, line 31: "subject As" should read –subject. As–
Column 8, line 41: "organisms" should read –organisms.–
Column 8, line 45: "graph As" should read –graph. As–
Column 8, line 47: "TU The" should read –TU. The–
Column 8, line 63: "(reference)" should read –reference). –
Column 9, line 1: "*St. Lous*" should read –*St. Louis*–
Column 9, line 4: "molecules They" should read –molecules. They–

Column 9, line 7: "agent Modifications" should read –agent. Modifications–
Column 9, line 11: "chemistry" should read –chemistry.–
Column 9, line 22: "DNA In" should read –DNA. In–
Column 9, line 26: "cell The" should read –cell. The–
Column 9, line 28: "virions" should read –virions.–
Column 9, line 29: "vivo or a" should read –vivo as a–
Column 9, line 39: "quarterly)) Since" should read –quarterly)). Since–
Column 9, line 42: "is mammalian cells Such" should read –in mammalian cells.
Such–

Column 9, line 44: "operable" should read –operably–
Column 9, lines 44-45: "transla-tion In" should read –transla-tion. In–
Column 9, line 46: "promoter In" should read –promoter. In–
Column 9, line 60: "quarterly) The" should read –quarterly). The–
Column 9, line 62: "flaviridae" should read –flaviviridae–
Column 9, line 64: "(1990) The" should read –(1990). The–
Column 9, line 66: "scriptase From" should read –scriptase. From–
Column 10, line 2: "fragments Examples" should read –fragments. Examples–
Column 10, line 4: "(1991) Incorporation" should read –(1991). Incorporation–
Column 10, line 7: "engineering When" should read –engineering. When–
Column 10, line 8: "acid harboring" should read –acid molecule harboring–
Column 10, lines 9-10: "fragment Such" should read –fragment. Such–
Column 10, lines 12-13: "engineering Examples" should read –engineering.

Examples–

Column 10, line 20: "obtained" should read –obtained. –
Column 10, line 35: "antigens A suitable" should read –antigens. A suitable–
Column 10, line 37: "acid In particular" should read –acid. In particular–
Column 10, line 40: "TU In" should read –TU. In–
Column 10, line 44: "functions When" should read –functions. When–
Column 10, line 49: "purposes" should read –purposes.–
Column 10, line 52: "particles These" should read –particles. These–

Column 10, line 56: "genone" should read -genome-

Column 10, line 60: "vaccine The" should read -vaccine. The-

Column 11, line 8: "limited b theory," should read -limited by theory,-

Column 11, line 12: "mechanisms" should read -mechanisms.-

Column 11, line 16: "antigens The" should read -antigens. The-

Column 11, lines 18-19: "anti-gens" should read -anti-gens.-

Column 11, line 23: "science They" should read -science. They-

Column 11, line 25: "Sciences) They" should read -Sciences). They-

Column 11, line 38: "administered One" should read -administered. One-

Column 11, line 43: "dague," should read -dengue,-

Column 11, line 56: "100%" should read -100%-

Column 11, line 59: "subject A significant" should read -subject. A significant-

Column 11, line 62: "invention Without" should read -invention. Without-

Column 11, line 64: "material" should read -maternal-

Column 11, line 67: "way" should read -way.-

Column 12, line 32: "Kpn1" should read -KpnI-

Column 12, line 36: "codone" should read -codon-

Column 12, line 43: "heater" should read -heated-

Column 12, line 58: "(1989) RT-PCR" should read -(1989). RT-PCR-

Column 12, line 59: "Kpn1" should read -KpnI-

Column 12, line 61: "(pCDNA2," should read -(pCDNA3,-

Column 13, line 7: "(1990)" should read -(1990).-

Column 13, line 13: "Nco1/Kpn1" should read -NcoI/KpnI-

Column 13, line 15: "pC1" should read -pCI-

Column 13, line 16: "Kpn1 The" should read -Kpn1. The-

Column 13, line 18: "fragment FIG. 3" should read -fragment. FIG. 3-

Column 13, line 19: "pCIBamp" should read -pCIBamp.-

Column 13, line 49: "(IFA) The" should read -(IFA). The-

Column 13, line 51: "positive For" should read -positive. For-

Column 14, lines 1-2: "per mL 10 µg" should read -per mL. 10 µg-

Column 14, line 6: "flask 48 h" should read -flask. 48 h-
Column 14, line 9: "serum 10 µL" should read -serum. 10 µL-
Column 14, line 10: "20 min IFA was" should read -20 min. IFA was-
Column 14, line 14: "H1AF" should read -HIAF-
Column 14, line 18: "pCDEJE2-7, pCEJE, or pRCJE" should read -pCDJE2-7,
pCEJE, pREJE, or pRCJE-

Column 14, line 44: "sequence Following" should read -sequence. Following-
Column 14, line 47: "Table 1) This" should read - Table 1). This-
Column 14, line 51: "used Vectors" should read -used. Vectors-
Column 14, line 53: "analysis" should read -analysis.-
Column 14, line 61: "anitgen-positive" should read -antigen-positive-
Column 14, line 65: "pC1Bamp" should read -pC1Bamp-
Column 14, line 65: "pC1BJES14" should read -pC1BJES14-
Column 15, line 15: "(negative control). pCDJE2-7." should read -(negative
control), pCDJE2-7,-

Column 15, line 16: "pC1BJES14, pCEJEm pREJE, or pRCJE, Cells" should read
-pC1BJES14, pCEJE, pREJE. Cells-

Column 15, line 18: "cells The" should read -cells. The-
Column 15, line 28: "mg. mL," should read -mg/mL,-
Column 15, line 29: "Neomycin-resistance" should read -Neomycin-resistant-
Column 15, line 31: "medium Expression" should read -medium. Expression-
Column 15, line 35: "neomycin" should read -neomycin.-
Column 15, line 42: "(1983)) JEV" should read -(1983)). JEV-
Column 15, line 64: "1-" should read -1+-
Column 16, line 33: "H1AF" should read -HIAF-
Column 16, line 49: "days Culture" should read -days. Culture-
Column 16, line 54: "(TN buffer) The" should read -(TN buffer)). The-
Column 16, line 57: "medium The" should read -medium. The-
Column 16, line 67: "TN This" should read -TN. This-

Column 17, line 8: "buffer Antigen-capture" should read -buffer. Antigen-capture-

Column 17, line 14: "gradient" should read -gradient.-
Column 17, line 15: "particles Gradient" should read -particles. Gradient-
Column 17, line 19: "(1970)) Proteins" should read -(1970)). Proteins-
Column 17, lines 28-29: "serum Pro-teins" should read -serum. Pro-teins-
Column 17, line 31: "respectively" should read -respectively.-
Column 17, line 44: "seeded PEG-precipitated" should read -seeded. PEG-
precipitated-

Column 17, line 46: "0 7 mL" should read -0.7 mL-
Column 17, line 47: "gradient Triton" should read -gradient. Triton-
Column 18, line 1: "(FIG. 5) Antigen" should read -(FIG. 5). Antigen-
Column 18, line 3: particles Treatment" should read -particles. Treatment-
Column 18, line 7: "molecules A similar" should read -molecules. A similar-
Column 18, line 8: "714-720)" should read -714-720).-
Column 18, line 11: "treatment" should read -treatment.-
Column 18, line 17: "to be 6.6" should read -to be 6.6.-
Column 18, line 23: "JCR" should read -ICR-
Column 18, line 34: "JE-VAX Mice" should read -JE-VAX. Mice-
Column 18, lines 36-37: "imunosorbent" should read -immunosorbent-
Column 18, line 40: "(1979))" should read -(1979)).-
Column 18, line 43: "(Table 3) The" should read -(Table 3). The-
Column 18, line 51: "nay" should read -any-
Column 18, line 54: "vaccine" should read -vaccine.-
Column 18, line 58: "JE-VEX" should read -JE-VAX-
Column 19, line 3: "JE-VEX" should read -JE-VAX-
Column 19, line 12: "vaccine Sera" should read -vaccine. Sera-
Column 19, line 23: "PCIBJES14" should read -pCIBJES14-
Column 19, line 30: "1.1600" should read -1:1600-
Column 19, line 31: "Table 4" should read -Table 4.-

Column 19, line 33: "1 1600" should read -1:1600-

Column 19, line 34: "vaccination Administration" should read -vaccination.

Administration-

Column 19, line 46: "animals" should read -animals.-

Column 19, line 57: "pC1BJES14" should read -pCIBJES14-

Column 19, line 67: "3 weeks 100%" should read -3 weeks. 100%-

Column 20, line 16: "(Table 5) In" should read -(Table 5). In-

Column 20, line 19: "days These" should read -days. These-

Column 20, line 21: "mice This" should read -mice. This-

Column 20, line 50: "vaccination Pups" should read -vaccination. Pups-

Column 20, line 53: "(6) The" should read -(6). The-

Column 20, line 55: "1.80" should read -1:80-

Column 20, line 57: "(6) Partial" should read -(6). Partial-

Column 20, line 59: "1.20 and 1.40," should read -1:20 and 1:40,-

Column 20, line 61: "mother As" should read -mother. As-

Column 20, line 62: "rates None" should read -rates. None-

Column 20, line 67: "pups" should read -pups.-

Column 21, line 20: "2. 100 µg" should read -2 100 µg-

Column 21, line 21: "DNA. or subcutaneously with two. 1/5 human dose of JE-VAX vaccine Sera" should read -DNA or subcutaneously with two 1/5 human dose of JE-VAX vaccine. Sera-

Column 21, line 23: "non-immune male" should read - non-immune male.-

Column 21, line 24: "No Survivors total for" should read -No. Survivors/total-

Column 21, line 36: "QIAAM" should read -QIAAMP-

Column 21, lines 42-43: "inserted with the" should read -inserted into the-

Column 21, line 54: "control As" should read -control. As-

Column 22, line 3: "proteins Epitope" should read -proteins. Epitope-

Column 22, line 6: "cells A" should read -cells. A-

Column 22, line 7: "JCR" should read -ICR-

Column 22, line 8: "servoconverted" should read -seroconverted-

Column 22, line 10: "water" should read -water.-
Column 22, line 16: "antigens" should read -antigens.-
Column 22, line 29: "procedure A" should read -procedure. A-
Column 22, line 46: "genes The" should read -genes. The-
Column 22, line 49: "intervals At" should read -intervals. At-
Column 22, line 52: "virus Levels" should read -virus. Levels-
Column 22, line 54: "day Passive" should read -day. Passive-

In the Claims:

Column 29, line 28: "1virus" should read -1 virus-
Column 29, line 30: "*St. Lous*" should read -*St. Louis*-
Column 29, lines 49-50: "*St. Lous*" should read -*St. Louis*-
Column 30, line 28: "*St. Lous*" should read -*St. Louis*-

Since not all of the errors are attributable to the Patent Office, the fee of \$100.00 pursuant to 37 C.F.R. 1.20(a) is being submitted herewith via EFS, from Deposit Account 02-4550. The preceding corrections remedy mistakes of a typographical nature and/or minor character. A Certificate of Correction is submitted herewith to make formal notice of the errors in the referenced patent.

Respectfully submitted,

KLARQUIST SPARKMAN, LLP

One World Trade Center, Suite 1600
121 S.W. Salmon Street
Portland, Oregon 97204
Telephone: (503) 595-5300
Facsimile: (503) 595-5301

By /Jodi L. Connolly/
Jodi L. Connolly, Ph.D.
Registration No. 54,044

cc: Docketing

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,417,136

DATED : August 26, 2008

INVENTOR(S) : Gwong-Jen J. Chang

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Other Publications (Section (56)):

On Page 1, under Lin *et al.*: "Elicitis" should read -Elicits-
On Page 1, under Wang *et al.*: "Virology 288:" should read -Virology 228-
On Page 3, Column 1, line 32: "NS₁" should read -NS1-
On Page 3, Column 1, line 33: "Overwriting" should read -Overwintering-
On Page 3, Column 2, line 22: "submit" should read -subunit-

In the Specification:

Column 1, line 26: "yellow fever virus. JEV," should read -yellow fever virus, JEV,-
Column 1, line 29: "others Altogether" should read -others. Altogether-
Column 1, line 30: "(1998))" should read -(1998)). -
Column 1, line 41: "virions M" should read -virions. M-
Column 1, line 62: "(1990))" should read -(1990)). -
Column 2, line 7: "(1985))" should read -(1985)). -
Column 2, line 13: "elderly; in" should read -elderly. in-
Column 2, line 39: "viremia" should read -viremia.-
Column 2, line 42: "(Tsai et al.) Whole" should read -(Tsai *et al.*). Whole-
Column 2, line 43: "do not have" should read -do have-
Column 2, line 44: "advantages The" should read -advantages. The-
Column 2, line 45: "host Such" should read -host. Such-
Column 2, line 46: "expensive Furthermore," should read -expensive. Furthermore, -
Column 2, line 54: "disease" should read -disease.-
Column 2, line 56: "WO 93/06214 The" should read -WO 93/06214. The-
Column 2, line 60: "JEV" should read -JEV.-
Column 2, line 63: "glycoprotein" should read -glycoprotein-
Column 3, line 3: "vaccine" should read -vaccine.-
Column 3, line 7: "JEV Recombinant" should read -JEV. Recombinant-

MAILING ADDRESS OF SENDER:
Klarquist Sparkman, LLP
One World Trade Center, Suite 1600
121 SW Salmon Street
Portland, Oregon 97204

PATENT NO. 7,417,136
No. of add'l copies _____
(@ .30 per page)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,417,136

DATED : August 26, 2008

INVENTOR(S) : Gwong-Jen J. Chang

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 3, line 13: "NS2B These" should read -NS2B. These-
Column 3, line 26: "(1992) Dmitriev et al." should read -(1992)). Dmitriev *et al.* -
Column 3, line 31: "fever Zhao" should read -fever. Zhao-
Column 3, line 49: "(1989) Also" should read -(1989)). Also-
Column 3, line 61: "(1997) Plasmid" should read -(1997)). Plasmid-
Column 3, line 63: "immunization In" should read -immunization. In-
Column 4, line 4: "(Kochel et al.) Challenge" should read -(Kochel *et al.*). Challenge)-
Column 4, line 23: "YFV Vaccine" should read -YFV. Vaccine-
Column 4, line 26: "alluded to" should read -alluded to. -
Column 4, line 33: "immunity There" should read -immunity. There-
Column 4, line 47: "St. Louis" should read -*St. Louis*-
Column 4, line 49: "(JEV) In important" should read -(JEV). In important-
Column 4, lines 50-51: "both In" should read -both. In-
Column 4, line 53: "antigens In" should read -antigens. In-
Column 5, lines 2-3: "anti-gens" should read -anti-gens. -
Column 5, line 11: "carrier In" should read -carrier. In-
Column 5, lines 13-14: "JEV Fur-thermore," should read -JEV. Fur-thermore,-
Column 5, line 25: "terminator" should read -terminator.-
Column 5, lines 52-53: "promoter Further-more," should read -promoter. Further-more,-
Column 5, line 66: "protecting" should read -protective-
Column 6, line 4: "inventory" should read -inventor-
Column 6, line 5: "acid is conferring" should read -acid in conferring-
Column 6, line 35: "pCIBamp" should read -pCIBamp-
Column 6, line 53: "pair) The" should read -pair). The-
Column 6, line 56: "ascetic" should read -ascitic-
Column 6, line 58: "ascetic fluid)" should read -ascitic fluid).-

MAILING ADDRESS OF SENDER:
Klarquist Sparkman, LLP
One World Trade Center, Suite 1600
121 SW Salmon Street
Portland, Oregon 97204

PATENT NO. 7,417,136
No. of add'l copies _____
(@ .30 per page)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,417,136

DATED : August 26, 2008

INVENTOR(S) : Gwong-Jen J. Chang

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 7, line 4: "*St. Lous*" should read –*St. Louis*–

Column 7, line 15: "HIAF Viral" should read –HIAF. Viral–

Column 7, line 17: "respectively" should read –respectively.–

Column 7, line 33: "molecules" should read –molecules.–

Column 7, line 45: "TU Although" should read –TU. Although–

Column 8, line 8: "TU In particular" should read –TU. In particular–

Column 8, line 10: "TU In particular" should read –TU. In particular–

Column 8, line 12: "cell In particular" should read –cell. In particular–

Column 8, line 31: "subject As" should read –subject. As–

Column 8, line 41: "organisms" should read –organisms.–

Column 8, line 45: "graph As" should read –graph. As–

Column 8, line 47: "TU The" should read –TU. The–

Column 8, line 63: "reference)" should read –reference). –

Column 9, line 1: "*St. Lous*" should read –*St. Louis*–

Column 9, line 4: "molecules They" should read –molecules. They–

Column 9, line 7: "agent Modifications" should read –agent. Modifications–

Column 9, line 11: "chemistry" should read –chemistry.–

Column 9, line 22: "DNA In" should read –DNA. In–

Column 9, line 26: "cell The" should read –cell. The–

Column 9, line 28: "virions" should read –virions.–

Column 9, line 29: "vivo or a" should read –vivo as a–

Column 9, line 39: "(quarterly)) Since" should read –(quarterly)). Since–

Column 9, line 42: "is mammalian cells Such" should read –in mammalian cells. Such–

Column 9, line 44: "operable" should read –operably–

Column 9, lines 44-45: "transla-tion In" should read –transla-tion. In–

Column 9, line 46: "promoter In" should read –promoter. In–

Column 9, line 60: "(quarterly) The" should read –(quarterly). The–

MAILING ADDRESS OF SENDER:

Klarquist Sparkman, LLP
One World Trade Center, Suite 1600
121 SW Salmon Street
Portland, Oregon 97204

PATENT NO. 7,417,136

No. of add'l copies _____
(@ .30 per page)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,417,136

DATED : August 26, 2008

INVENTOR(S) : Gwong-Jen J. Chang

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 9, line 62: "flaviridae" should read -flaviviridae-
Column 9, line 64: "(1990) The" should read -(1990). The-
Column 9, line 66: "scriptase From" should read -scriptase. From-
Column 10, line 2: "fragments Examples" should read -fragments. Examples-
Column 10, line 4: "(1991) Incorporation" should read -(1991). Incorporation-
Column 10, line 7: "engineering When" should read -engineering. When-
Column 10, line 8: "acid harboring" should read -acid molecule harboring-
Column 10, lines 9-10: "fragment Such" should read -fragment. Such-
Column 10, lines 12-13: "engineering Examples" should read -engineering. Examples-
Column 10, line 20: "obtained" should read -obtained. -
Column 10, line 35: "antigens A suitable" should read -antigens. A suitable-
Column 10, line 37: "acid In particular" should read -acid. In particular-
Column 10, line 40: "TU In" should read -TU. In-
Column 10, line 44: "functions When" should read -functions. When-
Column 10, line 49: "purposes" should read -purposes.-
Column 10, line 52: "particles These" should read -particles. These-
Column 10, line 56: "genone" should read -genome-
Column 10, line 60: "vaccine The" should read -vaccine. The-
Column 11, line 8: "limited b theory," should read -limited by theory,-
Column 11, line 12: "mechanisms" should read -mechanisms.-
Column 11, line 16: "antigens The" should read -antigens. The-
Column 11, lines 18-19: "anti-gens" should read -anti-gens.-
Column 11, line 23: "science They" should read -science. They-
Column 11, line 25: "Sciences) They" should read -Sciences). They-
Column 11, line 38: "administered One" should read -administered. One-
Column 11, line 43: "dgue," should read -dengue,-

MAILING ADDRESS OF SENDER:

Klarquist Sparkman, LLP
One World Trade Center, Suite 1600
121 SW Salmon Street
Portland, Oregon 97204

PATENT NO. 7,417,136

No. of add'l copies _____
(@ .30 per page)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,417,136

DATED : August 26, 2008

INVENTOR(S) : Gwong-Jen J. Chang

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 11, line 56: "100%" should read -100%.-

Column 11, line 59: "subject A significant" should read -subject. A significant-

Column 11, line 62: "invention Without" should read -invention. Without-

Column 11, line 64: "material" should read -maternal-

Column 11, line 67: "way" should read -way.-

Column 12, line 32: "Kpn1" should read -KpnI-

Column 12, line 36: "codone" should read -codon-

Column 12, line 43: "heater" should read -heated-

Column 12, line 58: "(1989) RT-PCR" should read -(1989). RT-PCR-

Column 12, line 59: "Kpn1" should read -KpnI-

Column 12, line 61: "(pCDNA2," should read -(pCDNA3,-

Column 13, line 7: "(1990)" should read -1990).-

Column 13, line 13: "Nco1/Kpn1" should read -NcoI/KpnI-

Column 13, line 15: "pCl" should read -pCl-

Column 13, line 16: "Kpn1 The" should read -Kpn1. The-

Column 13, line 18: "fragment FIG. 3" should read -fragment. FIG. 3-

Column 13, line 19: "pCIBamp" should read -pCIBamp.-

Column 13, line 49: "(IFA) The" should read -(IFA). The-

Column 13, line 51: "positive For" should read -positive. For-

Column 14, lines 1-2: "per mL 10 µg" should read -per mL. 10 µg-

Column 14, line 6: "flask 48 h" should read -flask. 48 h-

Column 14, line 9: "serum 10 µL" should read -serum. 10 µL-

Column 14, line 10: "20 min IFA was" should read -20 min. IFA was-

Column 14, line 14: "HIAF" should read -HIAF-

Column 14, line 18: "pCDEJE2-7, pCEJE, or pRCIE" should read -pCDJE2-7, pCEJE, pREJE, or pRCJE-

MAILING ADDRESS OF SENDER:

Klarquist Sparkman, LLP
One World Trade Center, Suite 1600
121 SW Salmon Street
Portland, Oregon 97204

PATENT NO. 7,417,136

No. of add'l copies _____
(@ .30 per page)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,417,136

DATED : August 26, 2008

INVENTOR(S) : Gwong-Jen J. Chang

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 14, line 44: "sequence Following" should read -sequence. Following-

Column 14, line 47: "Table 1) This" should read - Table 1). This-

Column 14, line 51: "used Vectors" should read -used. Vectors-

Column 14, line 53: "analysis" should read -analysis.-

Column 14, line 61: "anitgen-positive" should read -antigen-positive-

Column 14, line 65: "pC1Bamp" should read -pC1Bamp-

Column 14, line 65: "pC1BJES14" should read -pC1BJES14-

Column 15, line 15: "(negative control). pCDJE2-7." should read -(negative control), pCDJE2-7,-

Column 15, line 16: "pC1BJES14, pCEJEm pREJE, or pRCJE, Cells" should read -pC1BJES14,
pCEJEm, pREJE, Cells-

Column 15, line 18: "cells The" should read -cells. The-

Column 15, line 28: "mg. mL," should read -mg/mL,-

Column 15, line 29: "Neomycin-resistance" should read -Neomycin-resistant-

Column 15, line 31: "medium Expression" should read -medium. Expression-

Column 15, line 35: "neomycin" should read -neomycin.-

Column 15, line 42: "(1983)) JEV" should read -(1983)). JEV-

Column 15, line 64: "1-" should read -1+-

Column 16, line 33: "HIAF" should read -HIAF-

Column 16, line 49: "days Culture" should read -days. Culture-

Column 16, line 54: "(TN buffer) The" should read -(TN buffer)). The-

Column 16, line 57: "medium The" should read -medium. The-

Column 16, line 67: "TN This" should read -TN. This-

Column 17, line 8: "buffer Antigen-capture" should read -buffer. Antigen-capture-

Column 17, line 14: "gradient" should read -gradient.-

Column 17, line 15: "particles Gradient" should read -particles. Gradient-

Column 17, line 19: "(1970) Proteins" should read -(1970)). Proteins-

MAILING ADDRESS OF SENDER:
Klarquist Sparkman, LLP
One World Trade Center, Suite 1600
121 SW Salmon Street
Portland, Oregon 97204

PATENT NO. 7,417,136
No. of add'l copies _____
(@ .30 per page)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,417,136

DATED : August 26, 2008

INVENTOR(S) : Gwong-Jen J. Chang

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 17, lines 28-29: "serum Pro-teins" should read -serum. Pro-teins-
Column 17, line 31: "respectively" should read -respectively.-
Column 17, line 44: "seeded PEG-precipitated" should read -seeded. PEG-precipitated-
Column 17, line 46: "0.7 mL" should read -0.7 mL-
Column 17, line 47: "gradient Triton" should read -gradient. Triton-
Column 18, line 1: "(FIG. 5) Antigen" should read -(FIG. 5). Antigen-
Column 18, line 3: particles Treatment" should read -particles. Treatment-
Column 18, line 7: "molecules A similar" should read -molecules. A similar-
Column 18, line 8: "714-720)" should read -714-720).-
Column 18, line 11: "treatment" should read -treatment.-
Column 18, line 17: "to be 6.6" should read -to be 6.6.-
Column 18, line 23: "JCR" should read -ICR-
Column 18, line 34: "JE-VAX Mice" should read -JE-VAX. Mice-
Column 18, lines 36-37: "imunosorbent" should read -immunosorbent-
Column 18, line 40: "(1979))" should read -(1979).-
Column 18, line 43: "(Table 3) The" should read -(Table 3). The-
Column 18, line 51: "nay" should read -any-
Column 18, line 54: "vaccine" should read -vaccine.-
Column 18, line 58: "JE-VEX" should read -JE-VAX-
Column 19, line 3: "JE-VEX" should read -JE-VAX-
Column 19, line 12: "vaccine Sera" should read -vaccine. Sera-
Column 19, line 23: "PCIBJES14" should read -pCIBJES14-
Column 19, line 30: "1.1600" should read -1:1600-
Column 19, line 31: "Table 4" should read -Table 4.-
Column 19, line 33: "1 1600" should read -1:1600-
Column 19, line 34: "vaccination Administration" should read -vaccination. Administration-

MAILING ADDRESS OF SENDER:
Klarquist Sparkman, LLP
One World Trade Center, Suite 1600
121 SW Salmon Street
Portland, Oregon 97204

PATENT NO. 7,417,136
No. of add'l copies _____
(@ .30 per page)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,417,136

DATED : August 26, 2008

INVENTOR(S) : Gwong-Jen J. Chang

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 19, line 46: "animals" should read -animals.-

Column 19, line 57: "pC1BJES14" should read -pCIBJES14-

Column 19, line 67: "3 weeks 100%" should read -3 weeks. 100%--

Column 20, line 16: "(Table 5) In" should read -(Table 5). In-

Column 20, line 19: "days These" should read -days. These-

Column 20, line 21: "mice This" should read -mice. This-

Column 20, line 50: "vaccination Pups" should read -vaccination. Pups-

Column 20, line 53: "(6) The" should read -6). The-

Column 20, line 55: "1.80" should read -1:80-

Column 20, line 57: "(6) Partial" should read -6). Partial-

Column 20, line 59: "1.20 and 1.40," should read -1:20 and 1:40,-

Column 20, line 61: "mother As" should read -mother. As-

Column 20, line 62: "rates None" should read -rates. None-

Column 20, line 67: "pups" should read -pups.-

Column 21, line 20: "2. 100 µg" should read -2 100 µg-

Column 21, line 21: "DNA, or subcutaneously with two, 1/5 human dose of JE-VAX vaccine Sera" should read -DNA or subcutaneously with two 1/5 human dose of JE-VAX vaccine. Sera-

Column 21, line 23: "non-immune male" should read - non-immune male.-

Column 21, line 24: "No Survivors total for" should read -No. Survivors/total-

Column 21, line 36: "QIAAM" should read -QIAAMP-

Column 21, lines 42-43: "inserted with the" should read -inserted into the-

Column 21, line 54: "control As" should read -control. As-

Column 22, line 3: "proteins Epitope" should read -proteins. Epitope-

Column 22, line 6: "cells A" should read -cells. A-

Column 22, line 7: "JCR" should read -ICR-

Column 22, line 8: "servoconverted" should read -seroconverted-

MAILING ADDRESS OF SENDER:

Klarquist Sparkman, LLP
One World Trade Center, Suite 1600
121 SW Salmon Street
Portland, Oregon 97204

PATENT NO. 7,417,136

No. of add'l copies _____
(@ .30 per page)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,417,136

DATED : August 26, 2008

INVENTOR(S) : Gwong-Jen J. Chang

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 22, line 10: "water" should read -water.-

Column 22, line 16: "antigens" should read -antigens.-

Column 22, line 29: "procedure A" should read -procedure. A-

Column 22, line 46: "genes The" should read -genes. The-

Column 22, line 49: "intervals At" should read -intervals. At-

Column 22, line 52: "virus Levels" should read -virus. Levels-

Column 22, line 54: "day Passive" should read -day. Passive-

In the Claims:

Column 29, line 28: "1virus" should read -1 virus-

Column 29, line 30: "*St. Lous*" should read -*St. Louis*-

Column 29, lines 49-50: "*St. Lous*" should read -*St. Louis*-

Column 30, line 28: "*St. Lous*" should read -*St. Louis*-

MAILING ADDRESS OF SENDER:
Klarquist Sparkman, LLP
One World Trade Center, Suite 1600
121 SW Salmon Street
Portland, Oregon 97204

PATENT NO. 7,417,136
No. of add'l copies _____
(@ .30 per page)